CLEAN AIR ACT SECTION 112(r) INSPECTION REPORT
Caguas Wastewater Treatment Plant
Caguas, Puerto Rico

GENERAL INFORMATION

Stationary Source	Caguas Wastewater Treatment Plant
Date of Inspection	January 23, 2009
USEPA Inspector	Ellen Banner, – USEPA, REGION II (Edison, NJ) Miguel A. Batista, USEPA – Region II, Caribbean Office, Water Program Myrek Nunez, USEPA – Region II, Caribbean Office, Water Program
Contract Auditor	Neil Mulvey, Sullivan Group (Subcontractor)
Description of Activities	• Opening meeting with facility representative. • Program audit. • Closing meeting with facility representatives. Program audit consisted of the following activities: 1. Document review. 2. Field verification. 3. Personnel interviews.

STATIONARY SOURCE INFORMATION

EPA Facility ID #	1000 0012 2324
Date of Latest Submission (used for RMP inspection)	Receipt Date: December 28, 2007 (Re-submission) Anniversary Date: December 27, 2012
Facility Location	PR Road #796 Km. 6.6 Caguas, PR 00725 Tel. (787) 620-3844
Number of Employees	*RMP*Submit* states 23 employees (per RMP registration).

Description of Surrounding Area	The facility is located on a 52-acre parcel of land in a rural area. The facility is surrounded by open space with the nearest resident located more than 1,000-ft. to the south.
Participants	Participants included representatives from: Ellen Banner, USEPA – Region II, Edison, NJ Miguel A. Batista, USEPA – Region II, Caribbean Office, Water Program Myrek Nunez, USEPA – Region II, Caribbean Office, Water Program Neil P. Mulvey, USEPA Contractor – Sullivan Group Israel Alnednar, Plant Manager – AAA* Jose Capeles, Executive Compliance Director – AAA Julio Correa, Compliance Director – AAA Priscila Garcia, Environmental Compliance – AAA Daberat Perez, Compliance Specialist – AAA Yoanda Rios, Eastern Region Compliance Manager - AAA * Lead representative for Caguas Wastewater Treatment Plant

REGISTRATION INFORMATION

Process ID #	73320 – Chlorine Injection to Waste Water
Program Level (as reported in RMP)	Program 3
Process Chemicals	Chlorine @ 18,000-lbs.
NAICS Code	22132 (Sewage Treatment Facilities)

GENERAL COMMENTS

The Caguas Wastewater Treatment Plant is one of many water and wastewater facilities owned by the Puerto Rico Aqueduct and Sewer Authority (PRASA). The facility operates as an advanced secondary treatment system with biological nutrient removal. The original design capacity of the facility is 12 MGD, which has been upgraded to 24 MGD. The facility typically operates at 13 MGD.

The facility operates 24/7 with three shifts. Typically a shift includes a supervisor, an operator, and an assistant operator. Minimal shift coverage includes an operator and assistant operator. The facility employs three supervisors, five operators, and four assistant operators. Operating personnel also includes a chemist and instrument mechanic.

The facility handles chlorine in 1-ton cylinders. The chlorine process includes a cylinder storage area, scale room, and injector room. The chlorine cylinder storage area is an open-sided room. Immediately adjacent to the storage area is the scale room, which is open to the storage area. The injector room is enclosed and located immediately adjacent to the scale room.

Two chlorine cylinders are connected at a time, one feeding the other in stand-by. The facility uses approximately 250 - 350-lbs. of chlorine per day. A maximum of nine 1-ton chlorine cylinders are on-site at any time. Cylinders are delivered from PRASA's San Juan Distribution Center. At the time of this inspection there were four 1-ton cylinders on-site.

The process includes chlorine detectors located in the cylinder storage area, scale room, and injector room. The chlorine detectors provide an audible and visual alarm. There is no interlock between the chlorine detectors and the ventilation fans.

RMP DOCUMENTATION

The facility's written RMP procedures are contained in an RMP/PSM Manual (most recently revised in 2007), which contained written procedures for each of the required program elements.

As noted above, only select RMP elements were reviewed during this inspection due to the limited time scheduled for the site visit.

RMP elements not reviewed during this inspection include:

- Process Safety Information (PSI) [*40 CFR 68.65*]
- Pre-Startup Review (PSR) [*40 CFR 68.77*]
- Compliance Audits [*40 CFR 68.79*]
- Incident Investigation [*40 CFR 68.81*]

Hazard Assessment [68.20-68.42]

The nearest public receptor is approximately 1,000 feet to the South. The facility used RMP* Comp to determine the Worst Case and Alternative Case Off-Site Consequence Analyses (OCAs). The scenario descriptions and assumptions, parameters input to the models, distance to endpoints, and impacted residential population and environmental receptors were appropriate to the facility's operations and location.

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

The most recent PHA available for review consisted of a checklist review completed on 9/26/05. The PHA was lead by an outside consultant and included a team with operations and maintenance personnel from the facility. The PHA checklist for this study was not available for review. The PHA identified three recommendations which facility management explained have been resolved, however there was no supporting documentation.

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

The facility recently prepared step-by-step checklist procedures to address routine operations. Operating procedure checklists have been prepared for changing of 1-ton chlorine cylinders (dated 1/23/09) and start-up of newly connected cylinders (dated 1/23/09). The cylinder changing checklist procedure does not include instructions for replacing the "O" ring, which is standard industry practice per the Chlorine Institute.

The checklist procedure for routine operations was still being developed and not yet finalized.

The facility also utilizes daily, weekly, and monthly equipment checklists, which appeared to be initiated in January 2009. Documentation of completed checklists includes confirmation of completed step, operator initials, and date.

There was no record of annual certification of operating procedures since they only recently have been developed.

Training [*40 CFR 68.71*]

Records of completed operator training included documentation of "Safety Training for Chlorine Handling" provided to system operators as follows:

- R. Cezares Lopez – 12/18/07
- Marcano Gonzalez – 12/18/07
- H. Cruz – 10/3/06

The most recent record of training for one operator (C. Rodriguez Borges) was on 9/25/05 for 8-hr Chlorine Management and ER Training. There was no record of three year refresher training for this operator.

There was no record of operator training on the newly develop chlorine process checklist procedures.

Mechanical Integrity [*40 CFR 68.73*]

Regular visual inspections of chlorine equipment are performed per procedural checklists. The hoists used to move the 1-ton cylinders are inspected annually by an outside contractor. The facility performs monthly checks on the operability of the chlorine detectors, as confirmed by a review of monthly records available for 2008. These checks however do not yet include instrument calibrations.

A review of the monthly checks for the chlorine detectors identified that four detectors were consistently "out-of-service." Facility management explained that these detectors were no longer needed due to changes in the chlorine process.

Employee Participation [*40 CFR 68.83*]

The RMP/PSM Manual includes a written employee participation plan. Documentation was available regarding employee participation including participation in the PHA study and through documented employee training.

Hot Work Permit [*40 CFR 68.85*]

The RMP/PSM Manual includes a written hot work permit procedure. Facility management reported that hot work is not performed at this plant.

Contractor Safety [*40 CFR 68.87*]

The RMP/PSM Manual includes a written contractor safety procedure. Facility management reported that contractors are not utilized at this facility.

Emergency Response [*40 CFR 68.90 – 68.95*]

The RMP/PSM Manual includes a written emergency response plan. The City of Caguas has a paid Fire Department which would respond to the facility in case of emergency. There were written procedures for public notification and for emergency medical treatment in case of a chlorine release.

FACILITY TOUR & RECOMMENDATIONS

Several items noted during the facility tour include:

- The chlorine lines were well labeled and easily identified including direction of flow.

- The injector room (which is an enclosed space) is equipped with a manually activated exhaust ventilation fan. **The facility should evaluate and consider interlocking the chlorine detector in the injector room with automatic activation of the exhaust ventilation fan in the event of a chlorine release in this enclosed space.**

- During the facility tour, the facility tested the chlorine detector audible and visual alarms. One visual alarm located on the east wall of the chlorine scale room was inoperative. **The facility should ensure that all chlorine detector audible and visual alarms are in proper working order.**

- The chlorine scale room includes a sump / pit for the collection of liquids. The facility once had a chlorine detector located in the pit, but has removed the detector. **Since chlorine is heavier than air and will likely accumulate in the pit if released, the facility should consider re-installing a detector in the pit in the chlorine scale room.**

FINDINGS

Process Hazard Analysis (PHA) [*40 CFR 68.67*]

- The most recent PHA available for review consisted of a checklist review completed on 9/26/05. The PHA checklist for this study was not available for review. **The facility must retain a copy of all PHA reviews, as required by 40 CFR 68.67(g).**

- The most recent PHA available for review consisted of a checklist review completed on 9/26/05. The review identified three recommendations for consideration. There was no record of resolution for the PHA recommendations. **The facility must ensure that the PHA recommendations are resolved and documented, as required by 40 CFR 68.67(e).**

Standard Operating Procedures (SOPs) [*40 CFR 68.69*]

- The facility recently prepared step-by-step checklist procedures to address routine operations. The cylinder changing checklist procedure does not include instructions for replacing the "O" ring, which is standard industry practice per the Chlorine Institute. The checklist procedure for routine operations was still being developed and not yet finalized. **The facility must complete development of applicable operating procedures, including normal operation, emergency shutdown, normal shutdown, and start-up after emergency shutdown. Operating procedures must include designation of safe operating limits, as required by 40 CFR 68.69(g).**

Training [*40 CFR 68.71*]

- The most recent record of training for one operator (C. Rodriguez Borges) was on 9/25/05 for 8-hr Chlorine Management and ER Training. There was no record of three year refresher training for this operator. **The facility must ensure that all operators receive refresher training at least once every three years, as required by 40 CFR 68.71(b).**

- There was no record of operator training on the newly develop chlorine process checklist procedures. **The facility must ensure that operators received training on procedures related to the safe operation of the process, as required by 40 CFR 68.71(a)(1).**

Mechanical Integrity [*40 CFR 68.73*]

- The facility performs monthly checks on the operability of the chlorine detectors, as confirmed by a review of monthly records available for 2008. These checks however do not yet include instrument calibrations. **The facility must establish a schedule for routine calibration of the chlorine detectors per vendor recommendations, as required by 40 CFR 68.73(d).**

Management of Change [*40 CFR 68.75*]

- A review of the monthly checks for the chlorine detectors identified that four detectors were consistently "out-of-service." Facility management explained that these detectors were no longer needed due to changes in the chlorine process. **The facility should perform a management of change review on this change and, as appropriate per the MOC, remove these detectors from the monthly checklist, as required by 40 CFR 68.75(e).**